

forwarding the received data from said base station to another network element.

REMARKS

Applicants have carefully considered the May 29, 2001 Office Action regarding their above-identified application for patent. It is believed that the amendments above and these remarks address and overcome each and every issue that the Examiner raised in that Action. This case should now be in condition for allowance, therefore Applicants solicit a prompt favorable reconsideration of their application.

For reasons discussed more below, Applicants have amended claims 5, 8, 9, 11, 16 and 20 for reasons discussed below. Clean copies of the amended claims appear above, and versions showing the amendments (by bracketing and underlining) are attached as the required "VERSIONS WITH MARKINGS TO SHOW CHANGES MADE."

The Action included a form PTO-948 identifying informalities in the drawings originally filed with this case. Formal drawings, overcoming the draftsman's objections, will be submitted following receipt of a Notice of Allowability of the claims in this case.

Claims 5 and 16 have been amended to address an indefiniteness rejection, albeit without narrowing the scope thereof.

Claims 8 and 9 have been amended to depend from claim 7, and claim 8 has been amended to conform more closely to the language of claim 7, since several terms in claims 8 and 9 actually find proper antecedence in claim 7 rather than in claim 5.

Claim 20 has been amended, but only to make a minor grammatical correction in the first paragraph. There should be no change in scope.

Claim 11 has been amended to add further transmission and reception of power control signals and thereby clearly require two-way power control. As discussed more later, the two-way

power control in the claimed context of a packet channel system distinguishes over the applied patents.

Claims 5-30 remain active in this application. The rejections specifically addressed claims 5-22 and 25-29. As discussed in detail below, those claims should be allowable.

The cover page of the Action indicates that claims 5-30 all are rejected. The initial statements of the rejections in the body of the Action, however, address only claims 5-22 and 25-29 (see first paragraph in number sections 3 and 5). There is no specific rejection of claims 23, 24 and 30. The subsequent explanation of the art rejection mentions claim 30, and there is a reference to claims 20-15 that may have been intended to reference claims up through 25 (see page 4, line 5). As such, it is not clear how the Examiner intended to treat claims 23, 24 and 30. If included in the art rejection, it is believed that claims 23, 24 and 30 are patentable at least for the same reasons as the respective independent claims (as discussed more later), although those claims should be further allowable in view of the additional limitations thereof.

Accordingly all claims should now be allowable. Specific comments below provide a more detailed explanation of how the rejections are overcome.

Definiteness

Claims 5 and 16 stand rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. With respect to claim 16, it was asserted that the reference to "certain" received signals was confusing. In response, Applicants have cancelled the word "certain" from claim 16. This should eliminate any possible concern on the point, and at the very least, such an amendment does not narrow the claim. It should be noted that the subsequent paragraphs of the claim clearly specify the received signals to which the controller responds.

With regard to claim 5, the Examiner alleges that the recitation of "receiving" power control signals before the recitation of "transmitting" power controls signals is somewhat confusing and/or

redundant. The subject matter of claim 5 includes a two-way power control functionality. The base station (BS) transmits BS power control signals, and the remote stations (RSs) transmit RS power control signals. The base station transmits at least some signals at power levels base on received RS power control signals, including the BS power control signals and control signals sent over a downlink channel. The remote stations transmit at least some signals responsive to received BS power control signals, including some RS power control signals as well as the data and control signals sent on the Common Packet Channel. The power control aspects of the two-way power control functionality were recited in reasonably clear terms in the original version of the claim, although the concern over definiteness may have arisen from the order of these steps. Accordingly, Applicants have amended claim 5 to reorder the transmitting and receiving steps somewhat, and to add the RS and BS acronyms to insure a clear identification of the origin of each type of power control signal. In practice, the technique may involve multiple transmissions of power control signals in one or often both directions and at various times in the overall sequence of operations. Consequently, the precise order of the minimal number of transmissions/receptions specified in method claim 5 is not critical or a limiting factor.

Since the transmission and reception steps appeared in the original version of claim 5, it is believed that the amended version of claim 5 is at least no narrower than the previous version. It should be noted, that in the revised version of the claim, it is not required that the BS power control signals are transmitted over the common packet channel (CPCH), which actually broadens the claim on that point.

Applicants respectfully submit that claims 5 and 16 are clear, concise and definite, and they request withdrawal of the 112 rejection of those claims.

The Art Rejection

Claims 5-22 and 25-29 stand rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 6,163,533 to Esmailzadeh et al. (hereinafter Esmailzadeh) in combination with U.S. Patent No. 5,103,459 to Gilhousen et al. (hereinafter Gilhousen).

In the background, the Esmailzadeh Patent describes a Spread Spectrum Slot Reservation Multiple Access (SS-SRMA) System, which uses a slotted-ALOHA (S-ALOHA) random access scheme. At the beginning of a slot, a mobile station sends a random access packet to the base station and then awaits an acknowledgment from the base station that the packet was received (see column 1, lines 45-53). The specific system disclosed by Esmailzadeh et al. allegedly uses a slotted-ALOHA random access scheme (Examiner points to Fig. 7). The background of the Esmailzadeh Patent also describes a separate system with random access (not slotted-ALOHA) and power ramping preamble transmissions (column 1, lines 31-44 and 54-67). The Examiner holds that such disconnected disclosures in Esmailzadeh satisfy the claim limitations, except for the transmission of the frame timing or common sync channel, the channel authorization from the base station and the claimed collision detection functions.

The Examiner relies on Gilhousen for disclosure of the several features not taught by Esmailzadeh. The Gilhousen patent actually concentrates on constructing PN sequences for CDMA communications. However, Gilhousen describes a number of power control features of a CDMA voice communication. In the cell transmitter, the power of the transmitted waveform is varied in accord with the data rate (column 11, lines 57-65). Each voice carrier is multiplied by a value that sets its transmitted power relative to the power of the other voice carriers. This power control feature allows power to be allocated to those links that require higher power due to the intended recipient being in a relatively unfavorable location. Means are provided for the mobile stations to report their received signal-to-noise ratio, to thereby allow the power to be set at a level so as to

provide adequate performance without waste (see column 13, lines 48-56). Periodically, a signal quality estimate is obtained and transmitted as a mobile unit power adjustment command along with data to the mobile unit (column 16, lines 41-53). Also, the cell-to-mobile link includes pilot, sync, paging and voice channels (see abstract); and presumably, the sync channel is used for the timing necessary to implement the slotted-ALOHA, envisioned as the access technique for the mobile-to-cell link (see column 35, lines 64-68). The rejection essentially concludes that these teachings in Gilhousen are enough to make up for some apparent deficiencies in the teachings of the Esmailzadeh Patent. However, the Examiner separately alleges that collision detection in slotted-ALOHA is known and would have been obvious, in an effort to address additional claim limitations not suggested in the cited patents.

Applicants respectfully traverse this rejection.

Patentability

It is submitted that the combination of references does not fairly suggest two-way power control, transmission of an acknowledgement (separate from associated power control signals, or the claimed use of collision detection codes or signals).

With respect to independent claim 5, the claim requires an exchange of power control signals in both directions and attendant control in both directions. The subsequent transmissions, in both directions, are based on respective received power control signals. More specifically, From the base station perspective, the method of claim 5 involves receiving RS power control signals from each respective one of the authorized remote stations, and transmitting BS power control signals to the respective authorized remote stations at power levels based on the received RS power control signals. From the remote station perspective, the method of claim 5 involves receiving BS power control signals from the base station and transmitting RS power control signals over the Common Packet Channel to the base station at power levels based on received BS power control signals. The

remote stations also transmit packet data and control signals to the CDMA base station based on received BS power control signals. The base station further transmits at least control signals over a downlink channel intended for respective authorized remote CDMA stations, at power levels based on received RS power control signals. Applicants respectfully submit that this two-way power control and associated communication in the claimed context of a wireless packet data communication is not fairly suggested in the proposed combination of references.

In the rejection, the Examiner apparently relied on Esmailzadeh to meet the various power control limitations. However, Esmailzadeh does not disclose any one system having all of the claimed features identified by the Examiner.

The system actually disclosed as the purported invention in Esmailzadeh does not include any power control. The claims, the summary of the invention and the entire detailed description all fail to even mention power or control thereof. As such, Esmailzadeh's own slotted-ALOHA system lacks power control. The disclosure of power control actually appears in the background section, which and describes several separate prior communication techniques. Although some of these techniques have some relevant power control aspects, they are separate and distinct from each other and from the system actually disclosed as their own by Esmailzadeh et al. The Examiner cited one section (column 1, line 35, through column 3, line 38) that describes the background systems, and another section (columns 5-7) that discloses the Esmailzadeh itself. However, neither the patent nor the rejection ever explains how or why one might combine different features from the otherwise separate systems, so as to achieve the portions of the presently claimed invention that the Examiner attributes to the Esmailzadeh patent.

As noted, the power control disclosures by Esmailzadeh relate to those of the admitted prior art. The CODIT system described in line 31-44 and 54-67 of column 1 fails to provide the claimed two-way power control. According to the description in this section of the background, once the

base station detects the access request preamble, it directly proceeds to activate a circuit to control the power of the mobile station transmissions. This means the MS must still be transmitting so that the base station has something to control (the power ramping is continuous). However, the mobile station does not transmit power control signals to the base station, and the base station does not transmit anything at a power level based on power control signals received from the mobile station.

The actual text of the patent suggests the CODIT system is not even a slotted-ALOHA system. The paragraph between those describing CODIT, specifically in lines 45-53 of column 1, describes a Spread Spectrum Slot Reservation Multiple Access (SS-SRMA) System that utilizes a slotted-ALOHA (S-ALOHA) random access scheme as being different from CODIT. Thus, the CODIT system disclosure here also fails to meet the slotted-ALOHA requirement of claim 5.

The slotted-ALOHA system actually disclosed in column 1, that is to say the SS-SRMA system, purportedly dispenses with a number of steps that characterize the CODIT and IS-95 random access schemes, including power ramping and power control (see lines 50-53 of column 1). As such, the SS-SRMA system does meet any of the power control requirements of the claim.

The Esmailzadeh patent indicates that an IS-95 CDMA system utilizes a random access technique similar to CODIT. As stated, the primary difference between the CODIT and IS-95 process is that the IS-95 mobile station transmits a complete random access packet instead of just the preamble. If the base station does not acknowledge the access request, the IS-95 mobile station re-transmits the access request packet at a higher power level. This process continues until the base station acknowledges the access request. As such, the disclosure of IS-95 also fails to disclose how the claimed two-way power control method steps might be specifically provided in an IS-95 system.

As shown by the above discussion, the base reference to Esmailzadeh fails to teach two-way power control, as claimed, and in fact fails to teach any one system that actually meets all of the limitations attributed to that patent in the rejection. Since Gilhousen is cited for other features, the

combination of Gilhousen with Esmailzadeh at least fails to teach all of the two-way power control expressly required in claim 5, that is to say the proposed combination at least fails to teach base station receipt and response to the RS power control signals (from the remote station).

Applicants further submit that the proposed combination would not have been obvious, under the appropriate legal standard. The relevant portions of Esmailzadeh relate to random access data channels, whereas the access and power control teachings of Gilhousen relate to older types of CDMA voice channels. The mere fact that both patents relate to wireless communications would not provide an actual suggestion to arbitrarily select and combine diverse operational aspects from the disclosed communication techniques. The rejection seems to allege that the motivation would be to enable "effectively transmitting and receiving packet." However, there is nothing in either reference to suggest that the data communication techniques actually discussed in Esmailzadeh were so ineffective as to benefit from or would be enhanced by the proposed modification in view of Gilhousen. As such there is simply no teaching or motivation that would actually lead a skilled artisan to combine anything from the two patents that might arguably lead to an arrangement that is otherwise relevant to the subject matter of claim 5.

As discussed, the combination of the Esmailzadeh and Gilhousen patents does not actually meet the claim limitations. The combination also would not have been obvious. Accordingly, claim 5 patentably distinguishes over those patents, and the art rejection of claim 5 should be withdrawn.

The claims dependent on claim 5 should be patentable for at least the same reasons as was that independent claim. The dependent claims, however, specify additional distinguishing features.

For example, dependent claim 7 specifies use of preamble codes and corresponding acknowledgement signals, to perform the authorization step. Contrary to the comments in the art rejection, the initial "handshaking" disclosed in the Esmailzadeh Patent is different from this type of

authorization with an acknowledgement. The disclosure of the handshaking in that patent actually refers to the mobile station being power-controlled by the base station. The mobile station will know that the base station has heard its initial signaling only after it is being power controlled by the base station. The claimed acknowledgement is a step separate and in addition to the power control, and in the preferred embodiment (e.g. claim 9), the reception of the power control signals at the remote stations occurs after reception of the acknowledgement, for example after transmission/reception of the acknowledgement over some indicator channel. Applicants respectfully submit that the handshaking that may be present in the methodology purportedly taught by the combination of Esmailzadeh and Gilhousen would not satisfy the claim requirement for receiving preamble codes, and in response, transmitting corresponding acknowledgement signals. Claims 7-9 therefore provide additional distinctions over the applied patents.

Also, it is submitted that the applied references do not disclose the exchange of collision detection codes, for example, as specified in pending dependent claim 10. Applicants have not found any disclosure in either of the cited patents relating to this specifically claimed feature. Apparently, the Examiner conceded that this feature is absent from Esmailzadeh and Gilhousen. Claims specifying use of such codes therefore should provide a further basis for a conclusion of patentability. However, the claims were included in the art rejection. Instead of pointing to an actual teaching on point, the Examiner alleged that "receiving and transmitting of collusion [sic] detection signals as in claims 10, 12, 19 and 26 is well known in the Slotted-ALOHA accessing method." With respect to these claims, the collision detection limitations and whether or not they are suggested in the prior art are core factual issues relating to the patentability thereof. As such, the burden is on the Examiner to come forward with specific factual evidence on the point, to support the conclusion of obviousness and allow Applicants a meaningful opportunity to consider and respond to the rejection. A mere unsupported allegation on such a point lacks the substantial

evidentiary support as to what is really taught and what if anything might motivate an artisan to consider and add such a teaching to the combination of Esmailzadeh and Gilhousen. Consequently, the rejection of such claims, based on unsupported allegations of general knowledge in the art must be withdrawn. See e.g. *In re Zurko*, docket 96-1258 (Fed. Cir. August 2, 2001).

Claim 11 relates to a CDMA wireless base station. As now clearly specified in this amended claim, the base station implements two-way power control. The base station receives power control signals over the common packet channel from the remote station and sends power control signals over the control channel to the remote station based on the received power control signals. The base station also receives power control signals and data, over the Common Packet Channel, and it transmits signals for the remote station at power levels based on the received power control signals. As discussed in detail above, the combination of Esmailzadeh and Gilhousen proposed in the art rejection, does not actually result in a base station that both receives and sends power control signals, where the transmitted power control signals are based on the power control signals received from the remote stations.

Claim 11 also specifies that the base station sends a coded acknowledgement over a control channel. The coded acknowledgement corresponds to the received coded preamble. As noted above, the initial "handshaking" identified as providing an acknowledgement in Esmailzadeh, is different from the claimed acknowledgement. In the patent, the handshaking actually relates to the mobile station being power-controlled by the base station. The mobile station knows that the base station has heard it only after it is being power controlled by the base station.

Since the combination would not meet all of the claim limitations, and as noted above, the combination would not have been obvious, claim 11 is patentable over the combination of Esmailzadeh and Gilhousen proposed in the art rejection.

The claims dependent from 11 should be patentable therewith, however, the dependent claims specify additional distinctions over the art. For example, the applied art does not fairly suggest the use of collision detection signals and corresponding responses, in the manner specified in claim 12, and the Examiner has failed to present any evidence to support the allegation of knowledge thereof in the art. Applicants further submit that the art does not teach the use of discrete power levels (as opposed to a continuous ramp-up), in the manner specified in dependent claim 15. Dependent claims 12-15 therefore also should be patentable.

Claim 16 is directed to a wireless mobile station, which incorporates certain inventive features. For example, claim 16 requires that the mobile station implement two-way power control, by receiving and transmitting power control signals. The transmitted power control signals are "based on" the received power control signals, for example by transmission of instructions to the base station at levels responsive to power control signals received from the base station. As discussed in detail, it is believed that the combination of Esmailzadeh and Gilhousen, as proposed in the art rejection, does not suggest either power control of the base station from the mobile station or the claimed acknowledgement. As such, that combination will not meet the claim requirements for functions by the mobile station relating to the sending and receiving of power control signals or receiving and responding to the acknowledgement, in the manner specifically required by claim 16. As noted, the combination also would not have been obvious. Claim 16 and the claims dependent therefrom should be allowable for at least those reasons.

Again, it is believed that the dependent claims specify further distinguishing features, such as the timing of the power control signal transmission, e.g. before the packet data transmission (claim 17) and after a coded preamble signal in the access burst (claim 18). Claim 19 adds a further distinction with regard to transmission of a collision detection code and receipt of a corresponding code from the base station, to initiate transmission of at least the packet data. For reasons discussed

above, it is submitted that Esmailzadeh and Gilhousen do not teach any collision detection functionality, let alone that specified in claim 19. Also, the Examiner has failed to provide evidence supporting the allegation that the collision detection code features specified in various claims in this case are known in the art.

Method claim 20 includes steps performed by both the remote station (RS) handset and the base station (BS), including steps relating to two-way power control and a specific access acknowledgement. For example, the RS-spread-spectrum transmitter sends power control information, and receives and responds to power control information from the base station. The BS-spread-spectrum transmitter sends power control information, and receives and responds to power control information from the RS handset. The BS-spread-spectrum transmitter sends the acknowledgement, which is received in the RS handset. Again, Esmailzadeh and Gilhousen do not teach two-way power control or a specific acknowledgement to the access burst signal. The power control selected from Esmailzadeh controls only the remote stations, and the handshaking does not provide the separate acknowledgement. As such, the combination of those patents fails to meet a substantial number of limitations clearly recited in independent claim 20. Claim 20 and dependent claims 21-28 therefore should be patentable.

The dependent claims add further patentable distinctions, such as the exchange of CD codes specified in claim 26.

Independent methods claims 27 and 29 both include two-way power control related steps, performed by the base station. In claim 27, the operations relate to communication with one authorized remote station, whereas in claim 29 the operations relate to communication with a plurality of remote stations. In both claims, however, the base station receives power control signals and transmits power control signals at power level or levels based on the received power control signal or signals. Applicants maintain that Esmailzadeh and Gilhousen do not fairly suggest the

control of the base station (in addition to one or more remote stations), in the context of a packet data communication methodology. For packet data communication, Esmailzadeh at most suggests one-way control, that is to say control of remote stations. For at least this reason, the combination does not meet the limitations of these independent claims, and claims 27-30 should be patentable over the art.

Conclusions


For at least the reasons outlined above, this case should be in condition for allowance. Applicants respectfully request that the Examiner reconsider the application and promptly issue a Notice of Allowability.

It is believed that all outstanding issues have been addressed. However, if any issue arises that may be addressed in an interview or may be overcome by an Examiner's amendment, Applicants request that the Examiner telephone their representative at the number shown below, so as to expedite resolution.

To the extent necessary, if any, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY


Keith E. George
Registration No. 34,111

600 13th Street, N.W.
Washington, DC 20005-3096
(202) 756-8603 KEG:MWE
Date: August 24, 2001
Facsimile: (202) 756-8087